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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/922,064

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Craig F. Valenti

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02/13/2004

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EXAMINER

SINGH, RAMNANDAN P

ART UNIT

PAPER NUMBER

2644

DATE MAILED: 02/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/922,064

Applicant(s)

VALENTI ET AL.

Examiner

Dr. Ramnandan Singh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 9-11 is/are rejected.
- 7) ☒ Claim(s) 2-8 and 12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 1, 3, 7, 9 are objected to because of the following informalities:

Claim 1 recites the limitation, "**power spectral densities for group of possible disturbers**" on page 20, line 6. This is grammatically incorrect. Replace the term "**group of possible disturbers**" with the term "**a group of possible disturbers**". A similar thing holds for claim 9.

Claim 3 recites the limitation, "**The method of claim 1 wherein the steps of subtracting**" on page 20, line 2. This is incorrect because claim 1 does not perform "**subtracting**". Replace the term "**The method of claim 1**" with the term "**The method of claim 2**".

Claim 7 recites the limitation "**The method of claim 5 wherein the mapping function is defined as "** on page 21, line 1. This is incorrect because claim 5 does not define a mapping function. Replace the term "**The method of claim 5**" with the term "**The method of claim 6**".

Further, claim 1 recites the limitation, "**measuring the power spectrum density (PSD) of a subscriber loop**" on page 20, line 3. This is incorrect because the PSD of the noise present (not the main signals) on a subscriber loop is measured. Hence, claim 1 should recite the limitation as, "**measuring the power spectrum density of the noise present on a subscriber loop**". A similar thing holds for claim 9.

Appropriate correction is required.

Double Patenting2. Analysis:

To demonstrate that copending Application no. 10/209,547 and the instant application 09/922,064 are claiming common subject matter, a brief comparative analysis is sketched below:

Instant Application No. 09/922,064	Co-pending Application NO. 10/209,547
Claim	Claim
1. A method for identifying the source of crosstalk disturbance in a subscriber loop comprising the steps of: measuring the power spectral density of a subscriber loop; correlating the power spectral density for said subscriber loop with predetermined set of power spectral for a group of possible crosstalk; and, selecting the crosstalk disturber having the most closely correlated power spectral density.	1. A method for identifying the source of crosstalk disturbance in a subscriber loop comprising the steps of: measuring the power spectral density of the noise present on a subscriber loop; correlating the power spectral density of subscriber loop a with a predetermined set of power spectral densities for a group of possible crosstalk disturbers; and selecting the crosstalk disturber having the most closely correlated power spectral density; and refining the selection of the crosstalk disturber using an additional mathematical technique.

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From the comparison of the above claims , it is clear that claim 1 of the instant application is a broad version of claim 1 of the copending application. Thus, the copending application and the instant application are claiming common subject matter.

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 1-3, 6, 8 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-2, 4, 8-9 of

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copending Application No. 10/209,547. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 1-3, 6, 8 of the instant application are a broader version of claims 1-2, 4, 8-9 of the copending application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1, 9 are rejected under 35 U.S.C. 102(e) as being anticipated by Terry [US20010012321 A1] .

Regarding claim 1, Terry teaches a method of identifying the source of crosstalk disturbance in a twisted pair telephone lines (.e. **subscriber lines**) shown in Fig. 1 [Para. 0002; 0004; 0017; 0025], the method comprising:

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measuring (i.e. **determining**) a power spectral density (PSD) of the noise present in a subscriber line in absence of main signals supplied to the subscriber loop;
correlating (i.e. **comparing**) the determined PSD with that of stored PDS templates of communication systems (i.e. **crosstalk sources**); and select (i.e. **identify**) a communications system (i.e. a **crosstalk source**) having the most closely determined power spectrum density [Para:0010- 0014; 0030; 0033; claims 1-3].

Claim 9 is essentially similar to claim 1 and is rejected for the reasons stated above.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Terry as applied to claim 9 above, and further in view of van Bavel et al [US 6,101,172].

Regarding claim 10, Terry does not teach subtracting the power spectrum density (PSD) of the selected crosstalk disturber from the determined PSD of the subscriber loop using spectral subtraction to generate a residual (i.e. **a margin**) PSD.

van Bavel et al teaches a method of identifying the source of crosstalk disturbance in a subscriber loop (i.e. HDSL2) shown in Fig. 1 [col. 1, lines 56-67] based on spectral subtraction. Table-3 presents the subtraction results with a group of crosstalk sources (i.e. disturbers) including the selected crosstalk disturber [Figs. 2-3; col. 1, lines 47-55; col. 3, lines 50-53; col. 5, line 11 to col. 7. line 21].

Terry and van Bavel et al are analogous art because they are from a similar problem solving area, viz. , crosstalk reduction in a subscriber loop.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the spectral subtraction technique of van Bavel et al with Terry.

The suggestion/motivation for doing so would have been to implement various techniques to reduce the input of crosstalk and improve the quality of communications over twisted pair loops bundled with each other [van Bavel et al ; col. 1, lines 57-67].

9. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Terry and van Bavel et al as applied to claim 10 above, and further in view of Chan [US 6,529,906 B1].

Regarding claim 11, the combination of Terry and van Bavel et al does not teach expressly mapping negative residual power spectral densities into a non-negative value. However, this mapping of a negative value (i.e. **a negative number**) into a non-negative value (i.e. **a non-negative number**) is well-known in the art.

Chan demonstrates an application of the above mapping function shown in Fig. 10A wherein he changes a value of a weight from a negative value to a non-negative value [col. 21, line 63 to col. 22, line 16].

Terry , van Bavel et al, and Chan are analogous art because they are from a similar problem solving area, viz. ,electronic communications systems.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the mapping function of Chan to map a negative PSD value to a non-negative PSD value with the combined system of Terry and van Bavel et al.

The suggestion/motivation for doing so would have been to implement the mapping function of Chan to avoid the problem causing discontinuity (singularity) in a computation process as well as to make the residual PSD physically realizable in an engineering practice.

Allowable Subject Matter

10. Claims 2, 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. Claims 3-8 are also objected to because they are dependent from claim 2 which has already been objected to.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramnandan Singh whose telephone number is (703)308-6270. The examiner can normally be reached on M-F(8:00-4:30).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester Isen can be reached on (703)-305-4386. The fax phone numbers for the organization where this application or proceeding is assigned are (703)872-9314 for regular communications and (703)872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)306-0377.

Ramnandan Singh
Examiner
Art Unit 2644



February 8, 2004



SPE, A.U. 2644